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Study of Inhibitory Efficacy of Natural Extract of Opuntia Ficus Indica as Green Inhibitor for Corrosion of Mild Steel in Drilling Water

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Abstract

The purpose of this study is to evaluate the anti-corrosive effect of natural extract of Opuntia Ficus Indica (O.F.I) for X60 mild steel in drilling water environment used in petroleum engineering. Experimental work has been achieved by weight loss, potentiodynamic polarization and EIS measurement, as well as SEM surface characterization. Among the results obtained, we can mention an inhibitory efficiency of 90% by gravimetric method and 80% by electrochemical method at 20% (v/v) of O.F.I. Moreover, The O.F.I extract acts as a mixed inhibitor; however, adsorption free enthalpy indicates a physisorption. The adsorption obeys the Langmuir isotherm model. These results have been improved by SEM micrographs.

Keywords:

Corrosion, mild steel, green inhibitor, Opuntia Ficus Indica and Electrochemical Impedance spectroscopy.

Biographies

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